Introduction and Purpose

A discussion of neighborhood improvement is incomplete without a thorough investigation into how alternative development patterns affect urban design and the built-form of a community. As such, a digital three-dimensional model of South Lake Union as it is presently constituted was produced to assist in this analysis. Later, a "built-out" model was generated, showing the maximum building envelope possible on properties within the study area under existing zoning, with consideration for 2024 population and jobs projections. Finally, we produced a model of the study area displaying a model of development which allows for greater maximum building height (high-rise tower alternative), but within the same growth projections parameters.

The primary objective of this model was to explore different options for accommodating growth in the neighborhood. Both the current zoning and the high-rise tower alternative allow for the construction of buildings whose height is greater than that which is presently found within the neighborhood. As such, using the model developed to visualize these impacts brings the planner, legislator and citizen to a better understanding of the implications of changing height regulations.

Methods and Process

Three primary elements make up the models of South Lake Union: present conditions model development, assumptions about future development patterns, and creation of future development models.

Present Conditions Model Development

Data used to generate the existing conditions model was derived from City of Seattle data as can be found at <http://.wagda.lib.washington.edu> as of April 2005. Using ArcGIS 9.0 and ArcScene, the data was first clipped from the larger datasets to only include South Lake Union and adjacent blocks. The data was then extruded to reflect topographical and dimensional realities. This three-dimensional data was then converted into a CAD drawing format for further conversion into the three-dimensional modeling software, 3D Studio MAX. This software was chosen for its versatility in performing multiple analysis functions. The result was a digital representation of the South Lake Union neighborhood, complete with pavement, buildings and topographical layout.

Assumptions about Future Development Patterns

The next step was to arrive at preliminary assumptions for future growth alternatives and thereafter develop two development alternatives from the following four assumptions:

- The growth alternatives were developed to reflect current population and job growth projections for 2024 for South Lake Union (8,000 new households, 16,000 new jobs).
- Sites which are unlikely to be redeveloped were identified. The map at the end of this chapter shows the locations of these sites. Generally, they include city parks, places of worship, the Fred Hutchinson Cancer Research Center, buildings constructed within the past 20 years, existing marina and maritime facilities, and existing affordable housing, measured by buildings with rents that are at or below 80% of median income. These sites were identified through King County Assessor data, Seattle Housing Authority data, and aerial photos.
- New development portrayed in the model would not take into consideration site-specific constraints such as soil conditions, traffic and environmental impacts and similar contingencies.
- Lastly, where population and job growth projections did not warrant additional development, sites with marginal likelihood of redevelopment were left alone.

With these preliminary assumptions, two growth alternatives were identified. The first assumed that zoning would remain constant during the next 20 years and therefore the height and bulk of future development would be consistent with current regulations. The map included in this chapter identifies these zoning designations. It was assumed that 60% of useable lot space would be dedicated to the primary use of the building (e.g. commercial space, residential units, industrial space), 20% would be allocated to open space, and the remaining 20% would be consumed by common access areas.

The second growth alternative assumed that building heights would increase in the area to accommodate taller residential towers. Currently the City of Seattle is proposing to increase maximum building heights within the downtown core area in order to allow for more office and residential development. The objective behind this proposal is to ensure that Seattle meets it housing and job allocation targets, as defined in its Comprehensive Plan. The high-rise alternative for South Lake Union essentially extends this proposal to the study area and assesses the visual impacts

that could result from such modifications to present zoning regulations. It was assumed that such an alternative would concentrate most of the taller buildings closer to the Denny Triangle. These assumptions were developed for modeling purposes only and do not represent a recommendation of the UDP studio or the City of Seattle.

They are as follows:
- Maximum height of 240 feet south of Mercer Street
- No changes to existing zoning north of Mercer Street
- 85 feet distance between buildings greater than 100 feet in height
- 45 feet distance between buildings less than 100 feet and greater than 50 feet in height
- Floor plate above 85 feet in height no greater than 10,000 square feet
- No floor area ratio (FAR) restrictions in order to maintain simplicity of assumptions

Creation of Future Development Models

After making assumptions on future growth patterns based on information from the maps of current zoning and parcels, two alternative models depicting South Lake Union were developed. Perspective views of these alternatives are included herein.

Results and Discussion

The process outlined above results in a versatile model complete with the ability to view the visual impacts of future development alternatives for South Lake Union from every possible viewpoint. Because of its location, South Lake Union is a highly visible portion of Seattle; the neighborhoods of Queen Anne, Wallingford, and Capitol Hill all overlook South Lake Union. This has implications for future development models in preserving sightlines and view-sheds from these adjacent neighborhoods.

Analysis and Recommendations

The tool generated facilitates future discussion and analysis rather than recommendations for specific actions. The appendix includes a number of visualizations from this model and could be used for generating future recommendations.
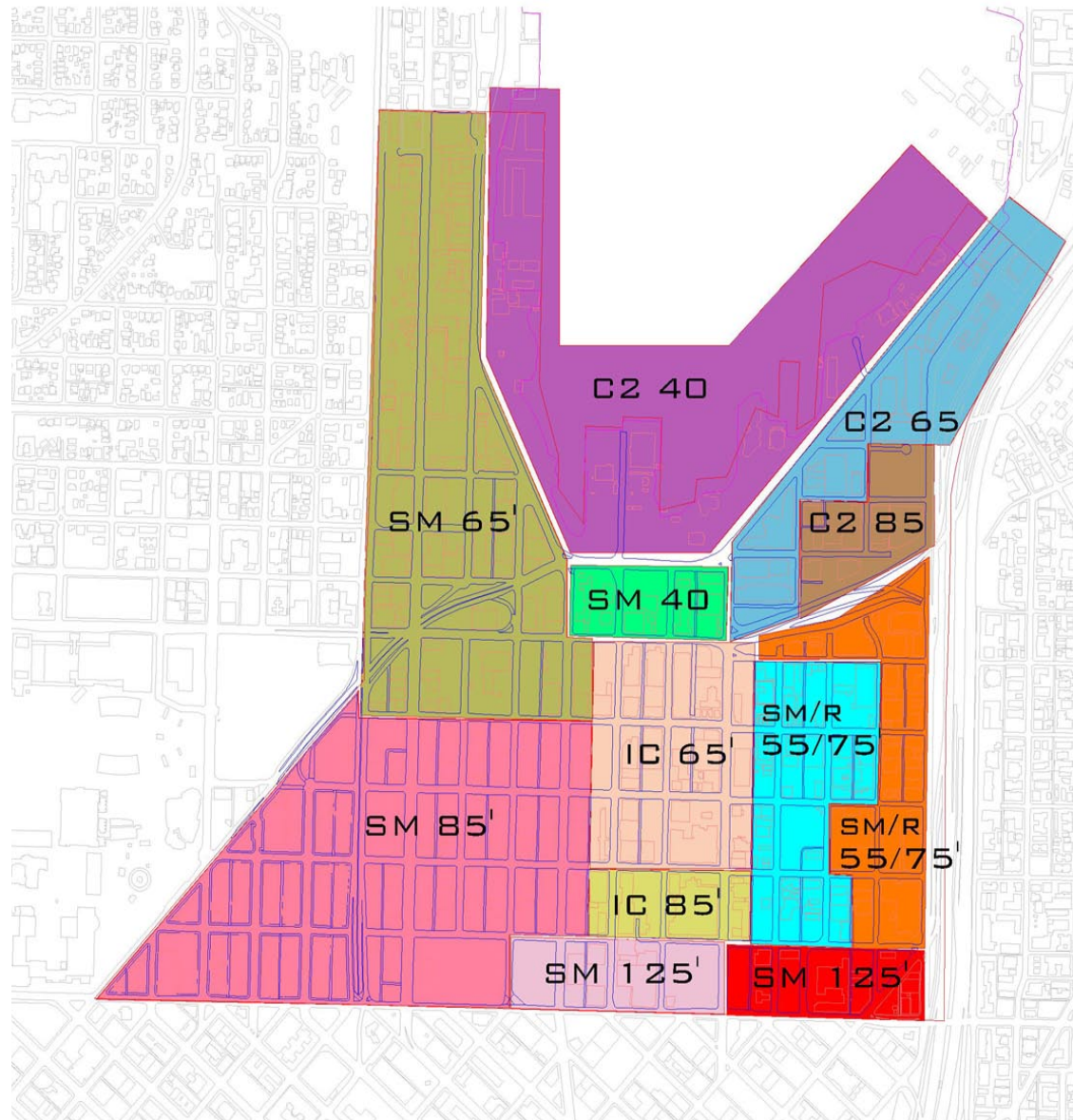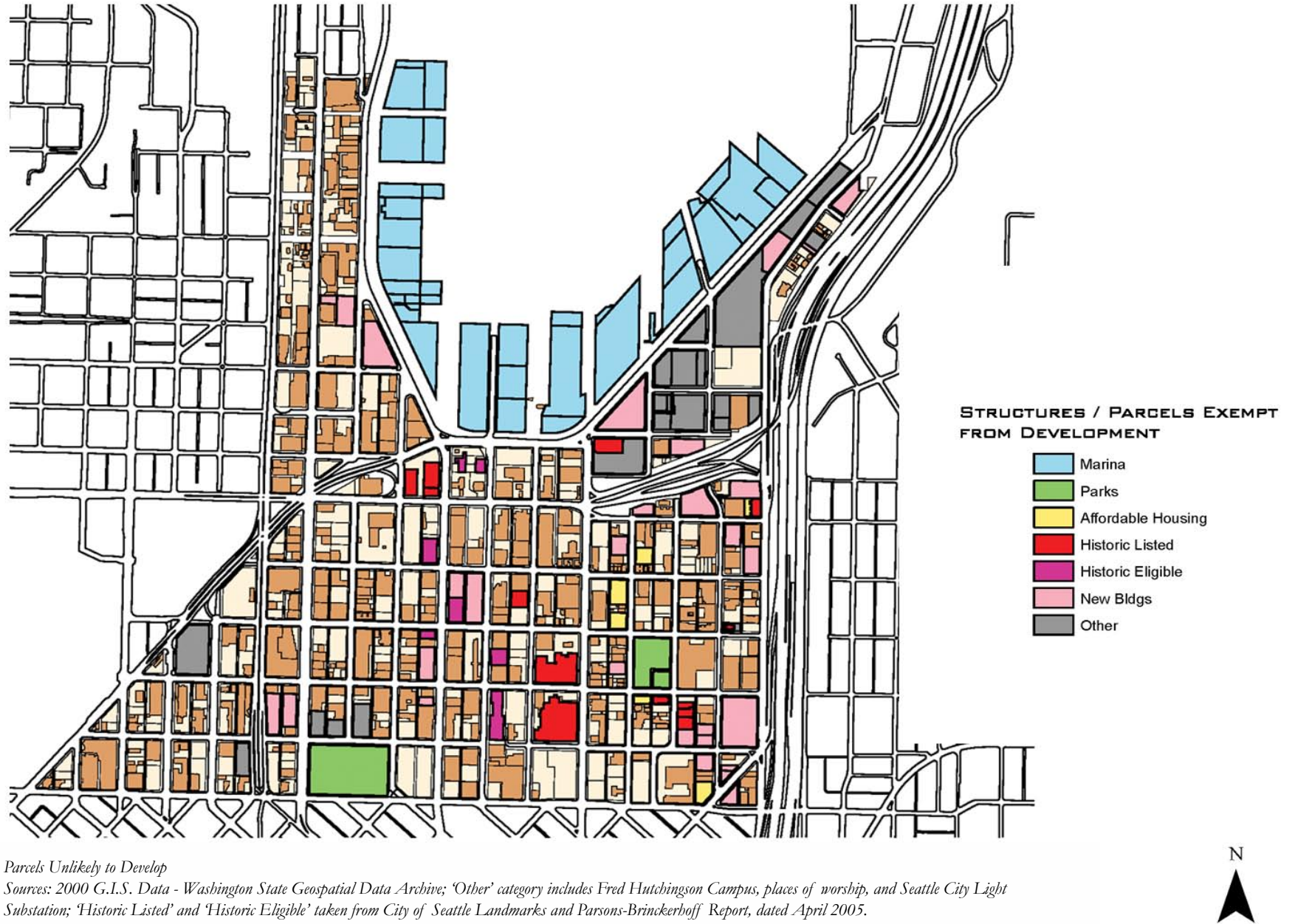
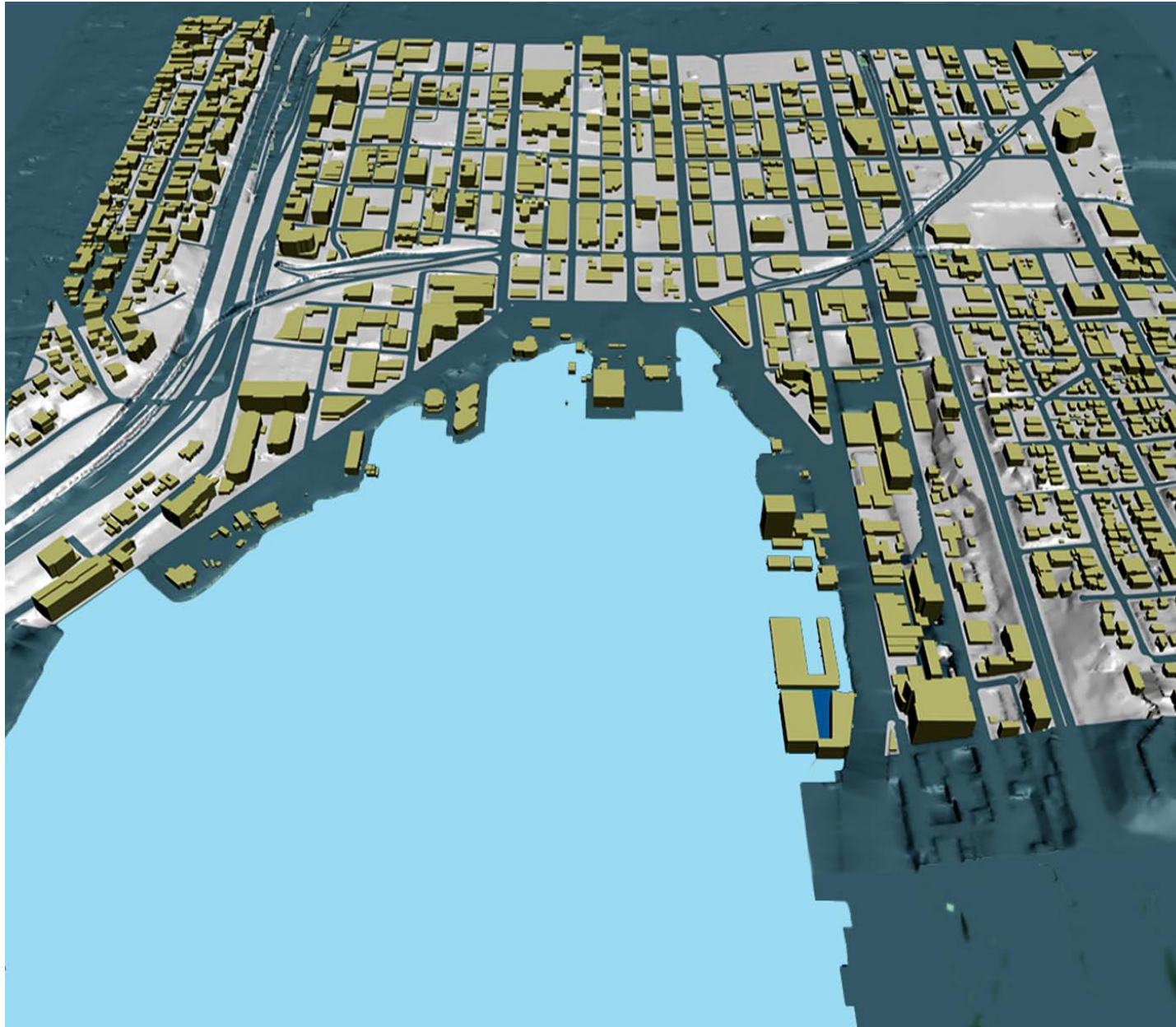# Appendix A

Maps and Visualizations

Map of Current Zoning

South Lake Union Zoning Map
Sources: 2005 Zoning Code Amendments

South Lake Union - Background and Draft Options for Urban Center Plan

Map of Parcels / Structures Not Likely to Develop

STRUCTURES / PARCELS EXEMPT FROM DEVELOPMENT

- Marina
- Parks
- Affordable Housing
- Historic Listed
- Historic Eligible
- New Bldgs
- Other

Parcels Unlikely to Develop
Sources: 2000 G.I.S. Data - Washington State Geospatial Data Archive; 'Other' category includes Fred Hutchingson Campus, places of worship, and Seattle City Light Substation; 'Historic Listed' and 'Historic Eligible' taken from City of Seattle Landmarks and Parsons-Brinckerhoff Report, dated April 2005.
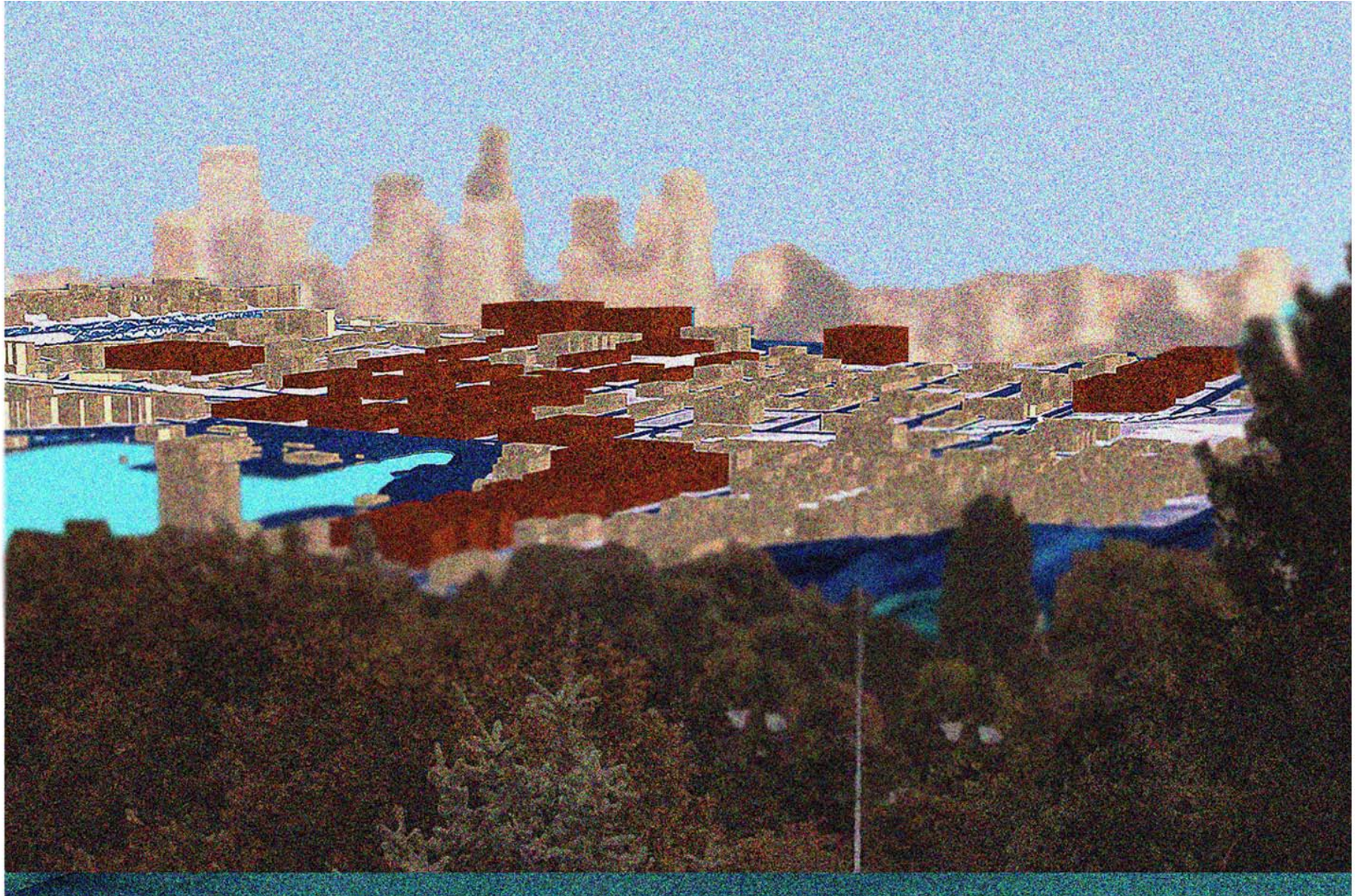
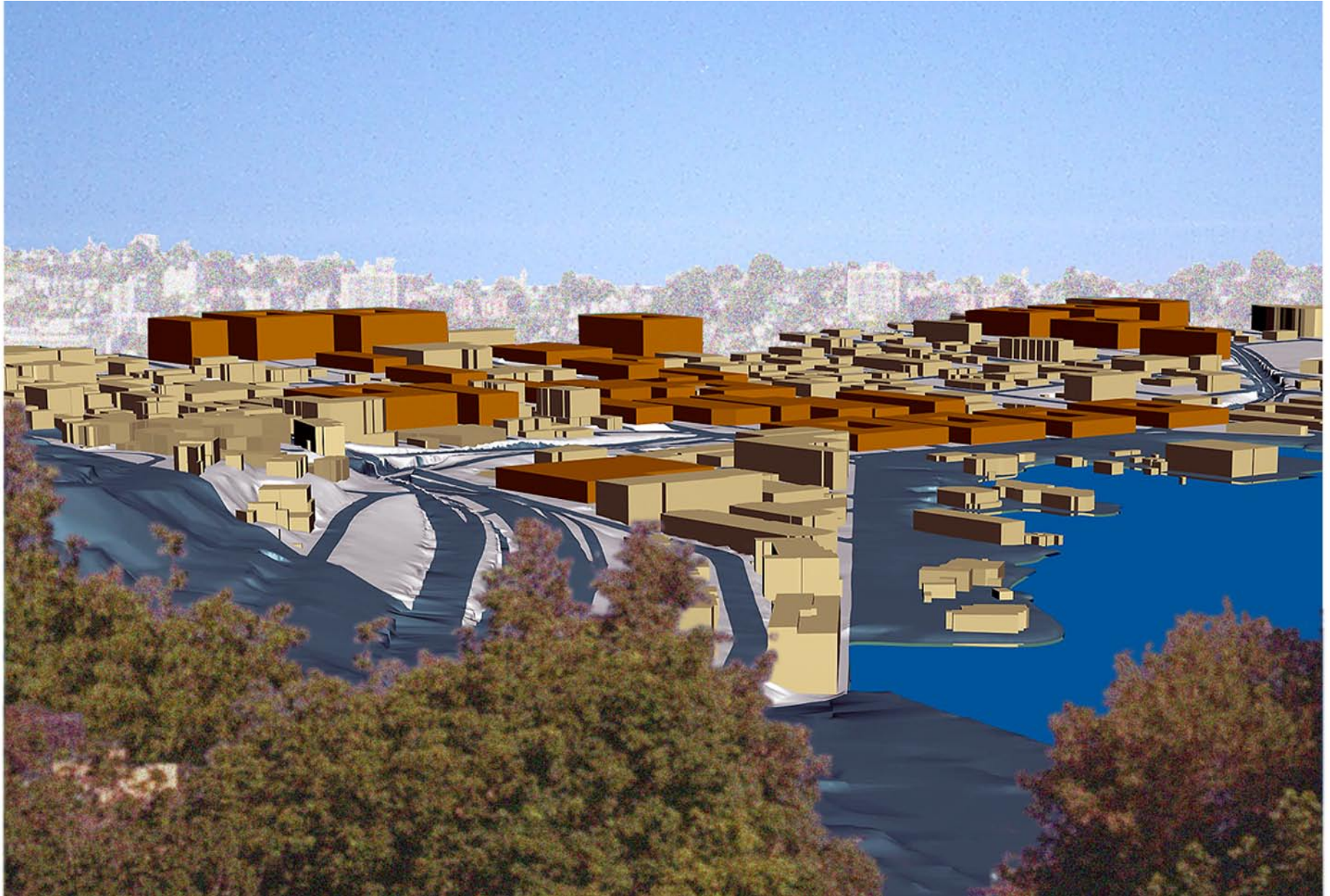## View of Existing Urban Form

View from Lake Union - Zoning Buildout
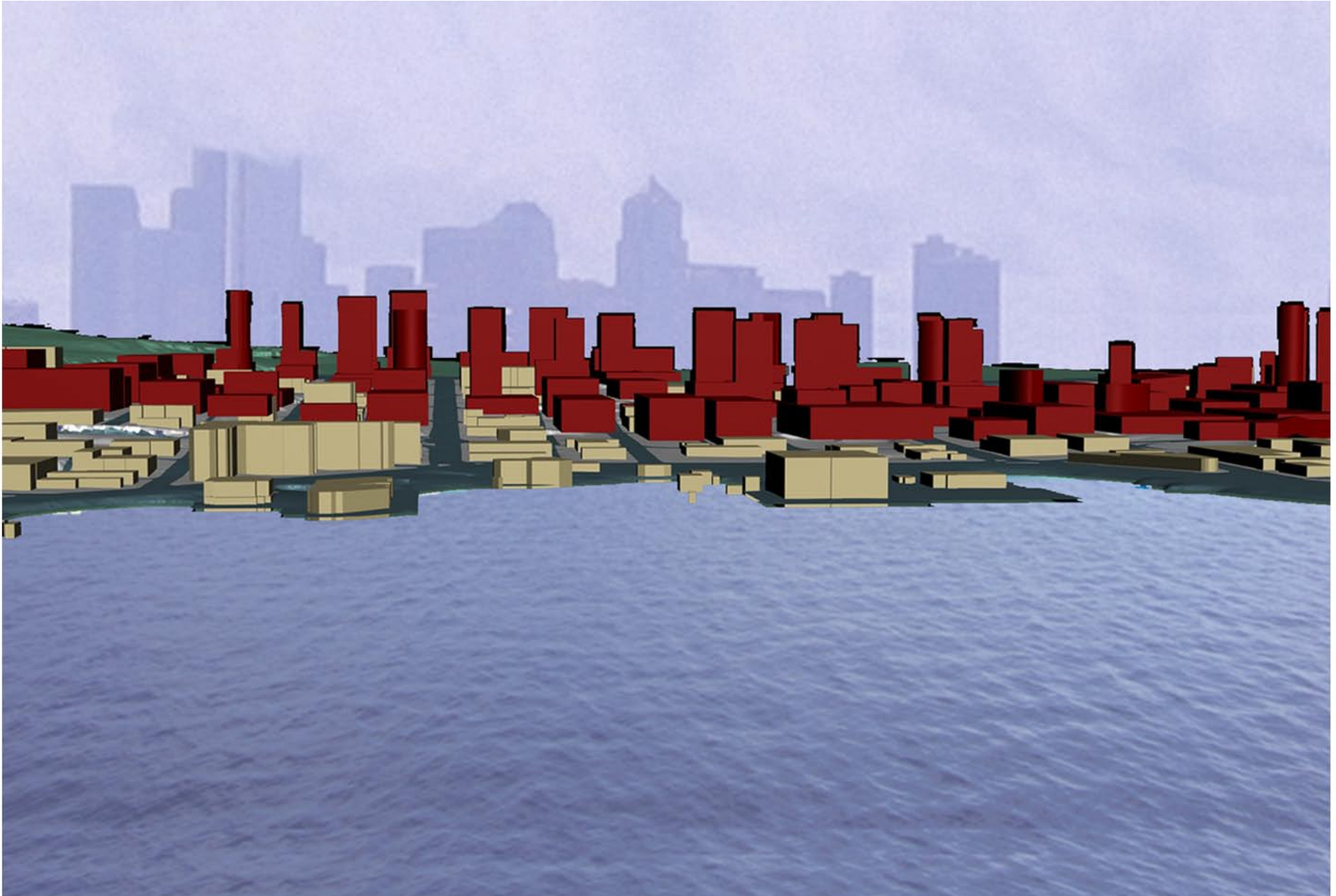
View from Queen Anne - Zoning Buildout
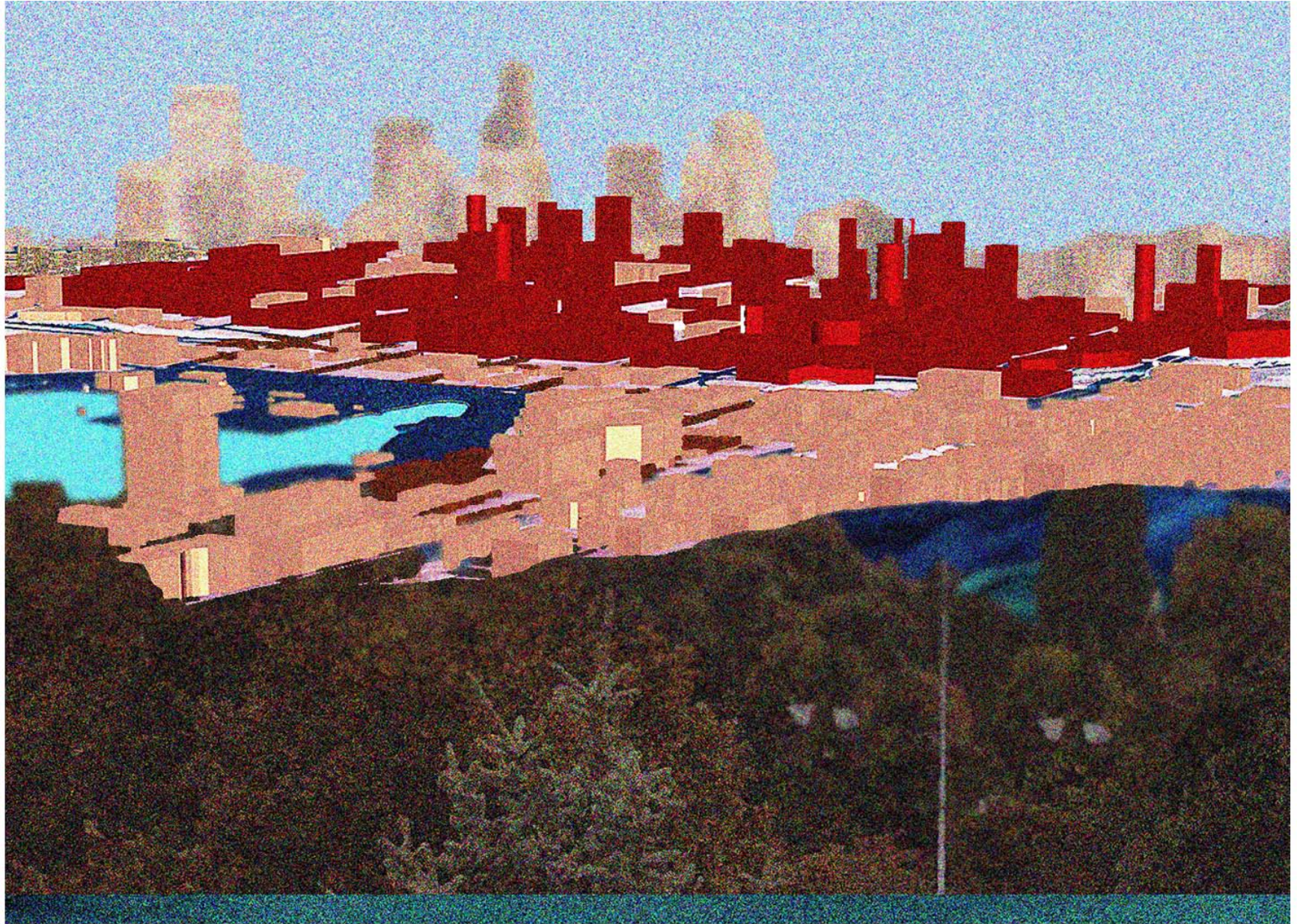
View from Capitol Hill - Zoning Buildout

View from Lake Union - High-Rise Alternative

South Lake Union - Background and Draft Options for Urban Center Plan

View from Queen Anne - High-Rise Alternative

View from Capitol Hill - High-Rise Alternative

South Lake Union - Background and Draft Options for Urban Center Plan